

ABSTRACT OF THE DISCLOSURE

In a process of forming MISFETs that have gate insulating films that are mutually different in thickness on the same substrate, the formation of an undesirable natural oxide film at the interface between the semiconductor substrate and the gate insulating film is suppressed. A gate insulating film of MISFETs constituting an internal circuit is comprised of a silicon oxynitride film. Another gate insulating film of MISFETs constituting an I/O circuit is comprised of a laminated silicon oxynitride film and a high dielectric film. A process of forming the two types of gate insulating films on the substrate is continuously carried out in a treatment apparatus of a multi-chamber system. Accordingly, the substrate will not be exposed to air. Therefore, it is possible to suppress the inclusion of undesirable foreign matter and the formation of a natural oxide film at the interface between the substrate and the gate insulating films.